

HYGIENIC BEES?

Question: How would I know if my bees are hygienic?

Answer: Seek and you may find.

Question: How should I go about that?

Answer: You will require a certain amount of equipment. Some to aid collection of mites without damaging them and some at home for later examination of the mites.

Question: Please explain?

1. Your research will be made easier if your apiary has a building, shed or even a greenhouse nearby. This will enable you to look for and collect mites without necessarily inflicting your own damage upon them. Good light is essential.
2. If you do not have these facilities you will need to evolve a guaranteed technique to get mites or debris home without inflicting your own damage upon them. If you cannot make that guarantee then you cannot be sure of quality of your research?
3. Start with having a well fitting varroa tray under a wire mesh floor. There should be a gap of at least 15mm between tray and floor. (Do not use the expanded metal mesh as the area of flattened metal is sufficient to prevent some important hive debris falling through. (explained later)
4. Collect mites daily if possible as this will ensure that any damage is more likely caused by the workers and not by other insects gaining access to the tray. Always clean the tray thoroughly after each visit and re-insert. If unable to make regular collections and debris build-up is too great, clean the floor and try to make more frequent collections, perhaps with assistance.
5. To gently pick up the mites use the finest artist brush you can find, a 4/0 size is best. The hairs of the brush should lift the mites from below or attach to the hairy carapace. Place the mites into a small glass or plastic receptacle by gently teasing them from the brush. Always aware that you must not be the cause of any damage. If in doubt discard the suspect mite. (1oz honey pots by Thorne's make good containers).
6. If more than one hive is involved, hives, tray and jars should all carry a number to identify from which hive they are collected. Records made later should also carry these identities.
7. Obtain a powerful magnifying lens to search out the mites. You may have excellent eyesight but you will understand soon why a strong lens is

recommended.

8. The next piece of equipment you will need will be a Stereo Dissecting Microscope with top-light, white platen and a wide field of view with about 20 x magnifications. The best you can afford may well be with Zoom facility as this feature helps identify types of damage.
9. TIP a few mites onto the `scopes platen and carefully spread them about and turn them over, one at a time, looking for signs of grooming damage. Should you be lucky enough to find damaged mites they may have legs missing, mouthparts missing, carapace dented or carapace torn? Make and maintain a hive record for each batch checked as this will become important when/if you intend breeding queens from such colonies.
10. If you do find "worker-damaged" mites then you should throw caution to the winds and stop using any form of varroa controls, especially the culling of drone larvae. You must put all your trust into the bees, but only if the percentage groomed is fairly high.
11. It usually takes about 30 minutes, and a strong lens to thoroughly check one tray. The number of mites collected from any hive will only reflect the degree of infestation, the number damaged will reflect the percentage. It does not follow that a hive with a large infestation will be more hygienic.
12. The reason why SHCG take 30 minutes per tray, and use a strong lens is because we have bees that uncap and remove larvae when they detect varroa within the cell. So when you are collecting mites DO NOT be satisfied with simply collecting adult brown varroa mites. Using the powerful lens and a good light, really study the tray debris (much easier when done regularly). What you may see are little watery-white corrugated tubes that could be mistaken as young wax moth larvae. They will be the antennae of unborn bee larva, torn off by workers attempting to drag a pupa from its cell to be discarded from the hive. Some of these antennae will get through the woven mesh floor. They build up on the expanded metal mesh!
13. If you should discover these antennae then, still using that powerful lens, search much closer and you should find tiny watery varroa mite babies, nymphs, dropped from the bee pupa as it was being dragged out of its cell. These are usually found close to where the antennae were found; immediately beneath the brood nest. You will now have two more statistics to add to your records. Any colony doing this uncapping is well worth the effort to breed from and studying the later generations? Disruption of the varroa breeding pattern at this very early stage will have maximum impact and enable such bees to be able to survive without beekeeper intervention?